

CLAIMS:

- 1) A battery for a PEA, comprising:
 - a) an anode;
 - 5 b) a cathode;
 - c) an electrolyte separator between said anode and said cathode, said electrolyte separator including polyamide and solvent present in a range from about 10% to about 40% by weight of said electrolyte.
- 10 2) A battery as defined in claim 1, wherein the portable electronic appliance is selected in the group consisting of cell phone, PDA, laptop computer, smart card, camcorder and digital camera.
- 15 3) A battery as defined in claim 2, wherein said electrolyte separator includes solvent in the range from about 15% to about 30% by weight of said electrolyte.
- 20 4) A battery as defined in claim 3, wherein said electrolyte separator includes solvent in the range from about 20% to about 25% by weight of said electrolyte.
- 25 5) A battery as defined in claim 2, wherein said battery has a weight less than 500 grams.
- 6) A battery as defined in claim 5, wherein said battery has a weigh less than 250 grams.
- 30 7) A battery as defined in claim 2, wherein said anode contains material capable of intercalating lithium ions.

- 8) A battery as defined in claim 7, wherein said anode includes a current collector.
- 9) A battery as defined in claim 2, wherein said solvent is
5 selected from the group consisting of N,N-methylpyrrolidinone (NMP), gamma-butyrolactone, and sulfamides of formula; $R_1R_2N-SO_2-NR_3R_4$, in which R_1 , R_2 , R_3 and R_4 are alkyls having between 1 and 6 carbon atoms and/or oxyalkyls having between 1 and 6 carbon atoms and
10 combinations thereof.
- 10) A battery as defined in claim 2, wherein said cathode includes active material.
- 15 11) A battery as defined in claim 10, wherein said active material is selected from the group consisting of $LiCoO_2$; $LiMnO_2$; $LiNiO_2$; $Li_4Ti_5O_{12}$; LiV_3O_8 ; V_6O_{13} ; V_2O_5 ; and $LiMn_2O_4$ and combinations thereof.
- 20 12) A battery as defined in claim 10, wherein said cathode includes an electronic conductive filler.
- 13) A battery as defined in claim 12, wherein said cathode includes an ionically conductive electrolyte
25 polymer binder.
- 14) A battery as defined in claim 2, wherein said electrolyte separator comprises an alkali metal salt.
- 30 15) A battery as defined in claim 14, wherein said alkali metal salt is selected from the group consisting of

LiPF_6 , LiBF_4 , LiSO_3CF_3 , LiClO_4 , LiSCN and combinations thereof.

16) A method for manufacturing a battery for a PEA,
5 comprising:

a) preparing an electrolyte separator including polyamide and solvent present in a range from about 10% to about 40% by weight of said electrolyte;

b) using said electrolyte separator to assemble a cell
10 in which said electrolyte separator is located between a cathode and an anode.

17) A method as defined in claim 16, comprising charging said battery.

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